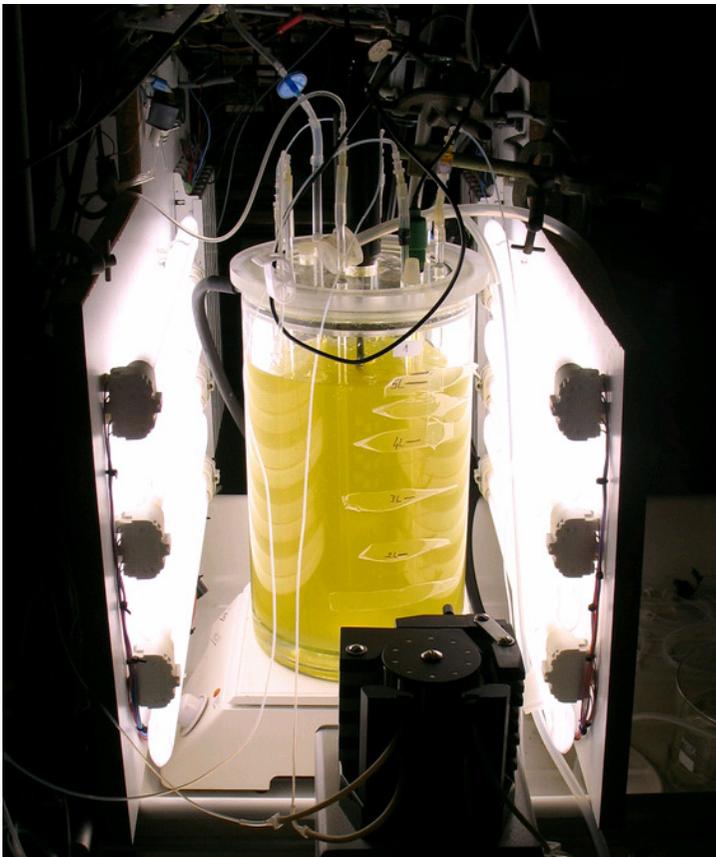


Modelamiento del crecimiento de microalgas



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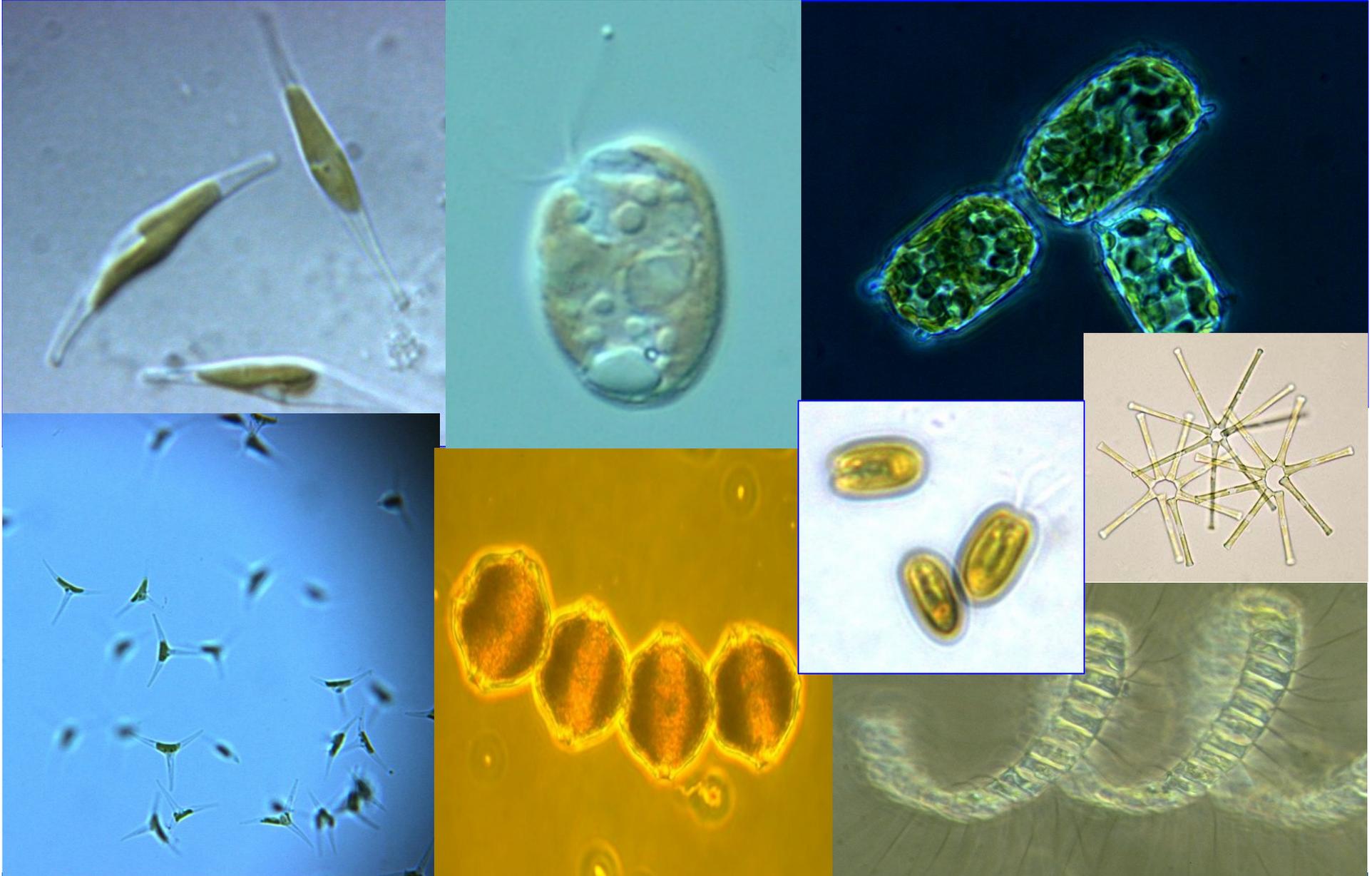
Laboratorio de Modelación 2

22 de agosto 2012



Introduction: what are microalgae?

Microalgae: a huge biodiversity



Microalgae: they grow everywhere



Modelamiento del crecimiento de microalgas

F. Mairet

They develop at large scale



They develop at VERY large scale



Satellite view of an *Emiliana huxleyi* bloom

Microalgae culture : Scaling up



Flasks 20 l



**Double Columns
60 l**



**Raceways under
greenhouses
3500 l**



They are cultivated in raceways



Innovalg, France

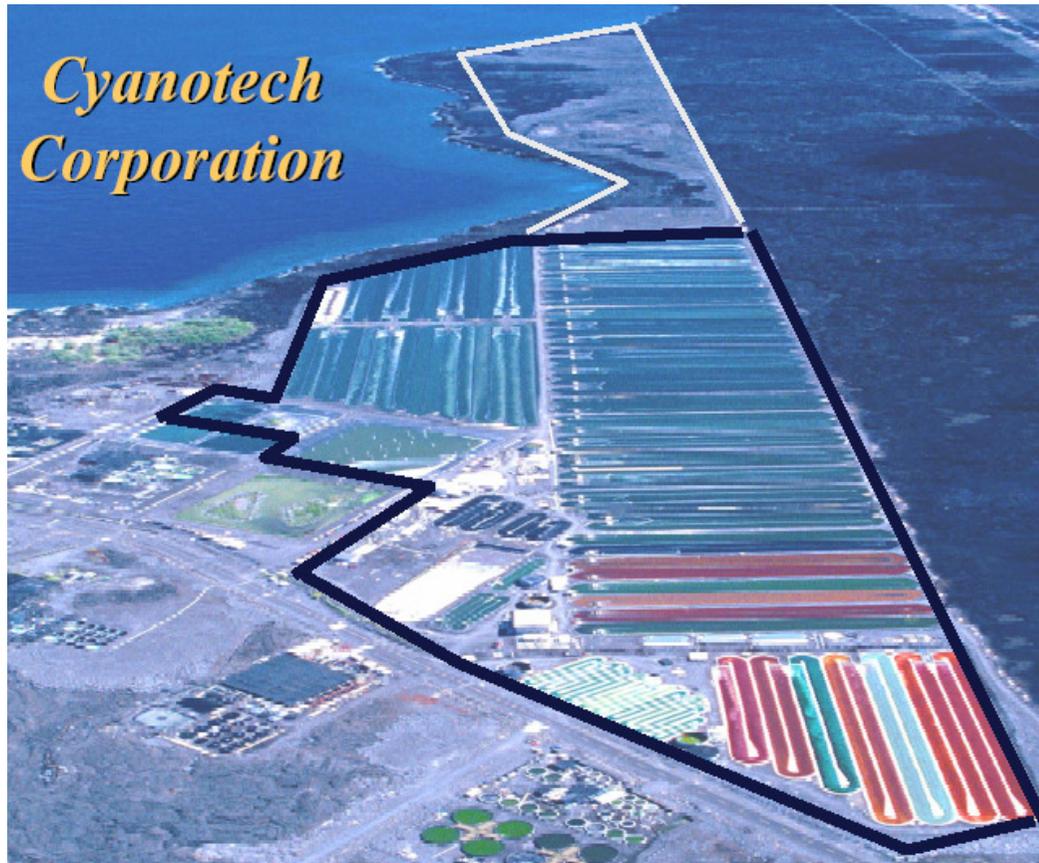
They are cultivated in photobioreactors (PBR)



(Germany)

- 1 ha
- 700 m³
- 500 km of tubes
- 150 tons per year
- 25 €/kg

They are cultivated (~10 0000 tons per year)



Fish food



Nutraceuticals

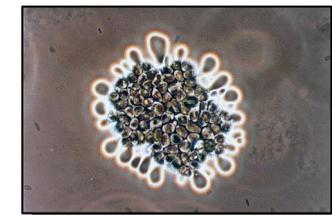


Cosmetics

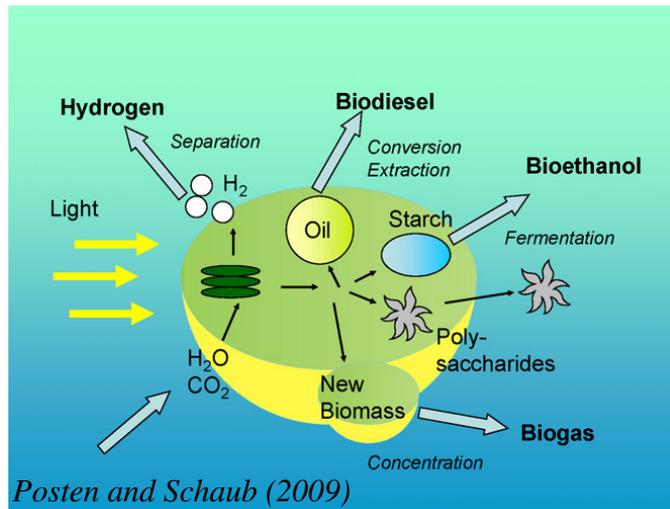


Health

Biofuel and CO₂ mitigation

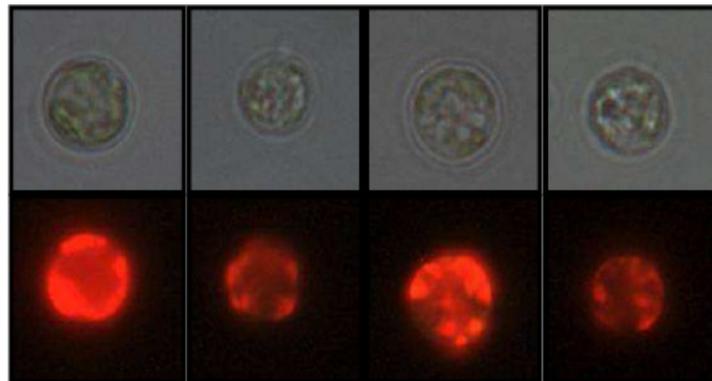


Biodiesel from microalgae



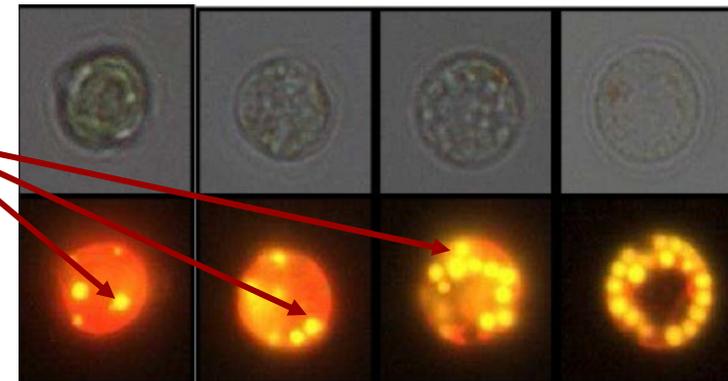
Recovering a fraction of solar energy

- High productivity (20 × rapeseed)
- No competition with food agriculture
- Industrial CO₂ mitigation
- High added value sub product



N replete

Lipid globules



N deprivation